



## SEQUENCE LISTING

<110> Larenas, Edmund A.  
Goedegebuur, Frits  
Gualfetti, Peter  
Mitchinson, Colin

<120> Variant Humicola grisea CBH1.1

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<140> US 10/810,277

<141> 2004-03-26

<150> US 60/459,734

<151> 2003-04-01

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Gly	Asp	Ser	Cys	Gly	Gly	Thr	Tyr	Ser	Asn	Glu	Arg	Tyr	Ala	Gly	Val	
				245				250						255		
Cys	Asp	Pro	Asp	Gly	Cys	Asp	Phe	Asn	Ser	Tyr	Arg	Gln	Gly	Asn	Lys	
			260					265					270			
Thr	Phe	Tyr	Gly	Lys	Gly	Met	Thr	Val	Asp	Thr	Thr	Lys	Lys	Ile	Thr	
		275					280					285				
Val	Val	Thr	Gln	Phe	Leu	Lys	Asp	Ala	Asn	Gly	Asp	Leu	Gly	Glu	Ile	
	290					295					300					
Lys	Arg	Phe	Tyr	Val	Gln	Asp	Gly	Lys	Ile	Ile	Pro	Asn	Ser	Glu	Ser	
305					310					315					320	
Thr	Ile	Pro	Gly	Val	Glu	Gly	Asn	Ser	Ile	Thr	Gln	Asp	Trp	Cys	Asp	
				325				330						335		
Arg	Gln	Lys	Val	Ala	Phe	Gly	Asp	Ile	Asp	Asp	Phe	Asn	Arg	Lys	Gly	
			340					345					350			
Gly	Met	Lys	Gln	Met	Gly	Lys	Ala	Leu	Ala	Gly	Pro	Met	Val	Leu	Val	
		355					360					365				
Met	Ser	Ile	Trp	Asp	Asp	His	Ala	Ser	Asn	Met	Leu	Trp	Leu	Asp	Ser	
	370					375					380					
Thr	Phe	Pro	Val	Asp	Ala	Ala	Gly	Lys	Pro	Gly	Ala	Glu	Arg	Gly	Ala	
385					390					395					400	
Cys	Pro	Thr	Thr	Ser	Gly	Val	Pro	Ala	Glu	Val	Glu	Ala	Glu	Ala	Pro	
				405				410						415		
Asn	Ser	Asn	Val	Val	Phe	Ser	Asn	Ile	Arg	Phe	Gly	Pro	Ile	Gly	Ser	
			420					425					430			
Thr	Val	Ala	Gly	Leu	Pro	Gly	Ala	Gly	Asn	Gly	Gly	Asn	Asn	Gly	Gly	
		435					440					445				
Asn	Pro	Pro	Pro	Pro	Thr	Thr	Thr	Thr	Ser	Ser	Ala	Pro	Ala	Thr	Thr	
	450					455					460					
Thr	Thr	Ala	Ser	Ala	Gly	Pro	Lys	Ala	Gly	Arg	Trp	Gln	Gln	Cys	Gly	
465					470					475					480	
Gly	Ile	Gly	Phe	Thr	Gly	Pro	Thr	Gln	Cys	Glu	Glu	Pro	Tyr	Thr	Cys	
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<210> 7  
 <211> 1662  
 <212> DNA  
 <213> *Scytalidium thermophilum*

<400> 7

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ggccagtgcc	agaccgtcca	ggcttccatc	actctcgact	ccaactggcg	ctggactcac	180
caggtgtctg	gctccaccaa	ctgctacacg	ggcaacgagt	gggattctag	catctgcact	240
gatgccaaagt	cgtgcgctca	gaactgctgc	gtcgatgggtg	ctgactacac	cagcacctat	300
ggcatcacca	ccaacgggtga	ttccctgagc	ctcaagttcg	tcaccaaggg	ccagtactcg	360
accaacgtcg	gctcgcgtac	ctacctgatg	gacggcgagg	acaagtatca	gagtaggttc	420
tatcttcagc	cttctcgcgc	cttgaatcct	ggctaacttt	tacacttcac	agccttcgag	480
ctcctcggca	acgagttcac	cttcgatgtc	gatgtctcca	acatcggctg	cggtctcaac	540
ggcgccctgt	acttcgtctc	catggacgcc	gatgggtggc	tcagccgcta	tcctggcaac	600
aaggctgggtg	ccaagtacgg	taccggctac	tgcgatgctc	agtgcctccg	tgacatcaag	660
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ggcgcgggcc	gctatggtac	ctgctgctct	gagatggata	tctgggaggc	caacaacatg	780
gctactgcct	tcactcctca	cccttgcact	atcattggcc	agagccgctg	cgagggcgac	840
tcgtgcgggtg	gcacctacag	caacgaccgc	tacgccggcg	tctgcgaccc	cgatggctgc	900
gacttcaacg	cgtatcgcca	gggcaacaag	accttctacg	gcaagggcat	gaccgtcgac	960
accaccaaga	agctcaccgt	cgtcacccag	ttcctcaagg	acgccaacgg	cgatctcggc	1020
gagatcaagc	gcttctacgt	ccaggatggg	aagatcatcc	ccaactccga	gtccaccatc	1080
cccggcgctcg	agggcaactc	catcaccacg	gattgggtgcg	accgccagaa	ggttgccttt	1140
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ggccccatgg	tcctgggtcat	gtccatcttg	gatgaccacg	cctccaacat	gctctggctc	1260
gactcgacct	tcctgtgcga	tgccgctggc	aagcccggcg	ccgagcgcg	tgcttggccg	1320
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<210> 8  
 <211> 1602  
 <212> DNA  
 <213> *Scytalidium thermophilum*

<400> 8

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ggccagtgcc	agaccgtcca	ggcttccatc	actctcgact	ccaactggcg	ctggactcac	180
caggtgtctg	gctccaccaa	ctgctacacg	ggcaacgagt	gggattctag	catctgcact	240
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ggcatcacca	ccaacgggtga	ttccctgagc	ctcaagttcg	tcaccaaggg	ccagtactcg	360
accaacgtcg	gctcgcgtac	ctacctgatg	gacggcgagg	acaagtatca	gaccttcgag	420
ctcctcggca	acgagttcac	cttcgatgtc	gatgtctcca	acatcggctg	cggtctcaac	480
ggcgccctgt	acttcgtctc	catggacgcc	gatgggtggc	tcagccgcta	tcctggcaac	540
aaggctgggtg	ccaagtacgg	taccggctac	tgcgatgctc	agtgcctccg	tgacatcaag	600
ttcatcaacg	gcgaggccaa	cattgagggc	tggaccggct	ccaccaacga	ccccaacgcc	660
ggcgcgggcc	gctatggtac	ctgctgctct	gagatggata	tctgggaggc	caacaacatg	720
gctactgcct	tcactcctca	cccttgcact	atcattggcc	agagccgctg	cgagggcgac	780
tcgtgcgggtg	gcacctacag	caacgaccgc	tacgccggcg	tctgcgaccc	cgatggctgc	840
gacttcaacg	cgtatcgcca	gggcaacaag	accttctacg	gcaagggcat	gaccgtcgac	900
accaccaaga	agctcaccgt	cgtcacccag	ttcctcaagg	acgccaacgg	cgatctcggc	960
gagatcaagc	gcttctacgt	ccaggatggg	aagatcatcc	ccaactccga	gtccaccatc	1020
cccggcgctcg	agggcaactc	catcaccacg	gattgggtgcg	accgccagaa	ggttgccttt	1080
ggcgacattg	acgacttcaa	ccgcaagggc	ggcatgaagc	agatgggcaa	ggccctcgcc	1140

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ggcccatgg tcctgggtcat gtccatctgg gatgaccacg cctccaacat gctctggctc 1200
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aacaacggcg gcaacaccac cgtccagccc ccgcccagca ccaccaccac ctctgccagc 1440
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cgctggcagc agtgcgggcg catcggcttc actggcccga cccagtgcga ggagccctac 1560
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<210> 9

<211> 533

<212> PRT

<213> Scytalidium thermophilum

<400> 9

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20          25          30
Ser Trp Lys Lys Cys Thr Ala Gly Gly Gln Cys Gln Thr Val Gln Ala
35          40          45
Ser Ile Thr Leu Asp Ser Asn Trp Arg Trp Thr His Gln Val Ser Gly
50          55          60
Ser Thr Asn Cys Tyr Thr Gly Asn Glu Trp Asp Ser Ser Ile Cys Thr
65          70          75          80
Asp Ala Lys Ser Cys Ala Gln Asn Cys Cys Val Asp Gly Ala Asp Tyr
85          90          95
Thr Ser Thr Tyr Gly Ile Thr Thr Asn Gly Asp Ser Leu Ser Leu Lys
100         105         110
Phe Val Thr Lys Gly Gln Tyr Ser Thr Asn Val Gly Ser Arg Thr Tyr
115         120         125
Leu Met Asp Gly Glu Asp Lys Tyr Gln Thr Phe Glu Leu Leu Gly Asn
130         135         140
Glu Phe Thr Phe Asp Val Asp Val Ser Asn Ile Gly Cys Gly Leu Asn
145         150         155         160
Gly Ala Leu Tyr Phe Val Ser Met Asp Ala Asp Gly Gly Leu Ser Arg
165         170         175
Tyr Pro Gly Asn Lys Ala Gly Ala Lys Tyr Gly Thr Gly Tyr Cys Asp
180         185         190
Ala Gln Cys Pro Arg Asp Ile Lys Phe Ile Asn Gly Glu Ala Asn Ile
195         200         205
Glu Gly Trp Thr Gly Ser Thr Asn Asp Pro Asn Ala Gly Ala Gly Arg
210         215         220
Tyr Gly Thr Cys Cys Ser Glu Met Asp Ile Trp Glu Ala Asn Asn Met
225         230         235         240
Ala Thr Ala Phe Thr Pro His Pro Cys Thr Ile Ile Gly Gln Ser Arg
245         250         255
Cys Glu Gly Asp Ser Cys Gly Gly Thr Tyr Ser Asn Asp Arg Tyr Ala
260         265         270
Gly Val Cys Asp Pro Asp Gly Cys Asp Phe Asn Ala Tyr Arg Gln Gly
275         280         285
Asn Lys Thr Phe Tyr Gly Lys Gly Met Thr Val Asp Thr Thr Lys Lys
290         295         300
Leu Thr Val Val Thr Gln Phe Leu Lys Asp Ala Asn Gly Asp Leu Gly
305         310         315         320
Glu Ile Lys Arg Phe Tyr Val Gln Asp Gly Lys Ile Ile Pro Asn Ser
325         330         335
Glu Ser Thr Ile Pro Gly Val Glu Gly Asn Ser Ile Thr Gln Asp Trp
340         345         350
Cys Asp Arg Gln Lys Val Ala Phe Gly Asp Ile Asp Asp Phe Asn Arg
355         360         365
Lys Gly Gly Met Lys Gln Met Gly Lys Ala Leu Ala Gly Pro Met Val

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370	375	380
Leu Val Met Ser Ile Trp	Asp Asp His Ala Ser	Asn Met Leu Trp Leu
385	390	395
Asp Ser Thr Phe Pro Val	Asp Ala Ala Gly Lys	Pro Gly Ala Glu Arg
405	410	415
Gly Ala Cys Pro Thr Thr	Ser Gly Val Pro Ala	Glu Val Glu Ala Glu
420	425	430
Ala Pro Asn Ser Asn Val	Val Phe Ser Asn Ile	Arg Phe Gly Pro Ile
435	440	445
Gly Ser Thr Val Ala Gly	Leu Pro Ser Asp Gly	Gly Asn Asn Gly Gly
450	455	460
Asn Thr Thr Val Gln Pro	Pro Pro Ser Thr Thr	Thr Thr Ser Ala Ser
465	470	475
Ser Ser Thr Thr Ser Ala	Pro Ala Thr Thr Thr	Thr Thr Ala Ser Ala
485	490	495
Pro Lys Ala Gly Arg Trp	Gln Gln Cys Gly Gly	Ile Gly Phe Thr Gly
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Pro Thr Gln Cys Glu Glu	Pro Tyr Thr Cys Thr	Lys Leu Asn Asp Trp
515	520	525
Tyr Ser Gln Cys Leu		
530		

<210> 10

<211> 497

<212> PRT

<213> Hypocrea jecorina

<400> 10

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Val Ile Asp Ala Asn Trp	Arg Trp Thr His Ala Thr	Asn Ser Ser Thr
35	40	45
Asn Cys Tyr Asp Gly Asn	Thr Trp Ser Ser Thr Leu	Cys Pro Asp Asn
50	55	60
Glu Thr Cys Ala Lys Asn	Cys Cys Leu Asp Gly Ala	Ala Tyr Ala Ser
65	70	75
Thr Tyr Gly Val Thr Thr	Ser Gly Asn Ser Leu Ser	Ile Gly Phe Val
85	90	95
Thr Gln Ser Ala Gln Lys	Asn Val Gly Ala Arg Leu	Tyr Leu Met Ala
100	105	110
Ser Asp Thr Thr Tyr Gln	Glu Phe Thr Leu Leu Gly	Asn Glu Phe Ser
115	120	125
Phe Asp Val Asp Val Ser	Gln Leu Pro Cys Gly Leu	Asn Gly Ala Leu
130	135	140
Tyr Phe Val Ser Met Asp	Ala Asp Gly Gly Val Ser	Lys Tyr Pro Thr
145	150	155
Asn Thr Ala Gly Ala Lys	Tyr Gly Thr Gly Tyr Cys	Asp Ser Gln Cys
165	170	175
Pro Arg Asp Leu Lys Phe	Ile Asn Gly Gln Ala Asn	Val Glu Gly Trp
180	185	190
Glu Pro Ser Ser Asn Asn	Ala Asn Thr Gly Ile Gly	Gly Gly His Gly Ser
195	200	205
Cys Cys Ser Glu Met Asp	Ile Trp Glu Ala Asn Ser	Ile Ser Glu Ala
210	215	220
Leu Thr Pro His Pro Cys	Thr Thr Val Gly Gln Glu	Ile Cys Glu Gly
225	230	235
Asp Gly Cys Gly Gly Thr	Tyr Ser Asp Asn Arg Tyr	Gly Gly Thr Cys
245	250	255
Asp Pro Asp Gly Cys Asp	Trp Asn Pro Tyr Arg Leu	Gly Asn Thr Ser
260	265	270

Phe	Tyr	Gly	Pro	Gly	Ser	Ser	Phe	Thr	Leu	Asp	Thr	Thr	Lys	Lys	Leu
		275					280					285			
Thr	Val	Val	Thr	Gln	Phe	Glu	Thr	Ser	Gly	Ala	Ile	Asn	Arg	Tyr	Tyr
	290					295					300				
Val	Gln	Asn	Gly	Val	Thr	Phe	Gln	Gln	Pro	Asn	Ala	Glu	Leu	Gly	Ser
305					310					315					320
Tyr	Ser	Gly	Asn	Glu	Leu	Asn	Asp	Asp	Tyr	Cys	Thr	Ala	Glu	Glu	Ala
			325						330					335	
Glu	Phe	Gly	Gly	Ser	Ser	Phe	Ser	Asp	Lys	Gly	Gly	Leu	Thr	Gln	Phe
			340					345					350		
Lys	Lys	Ala	Thr	Ser	Gly	Gly	Met	Val	Leu	Val	Met	Ser	Leu	Trp	Asp
		355					360					365			
Asp	Tyr	Tyr	Ala	Asn	Met	Leu	Trp	Leu	Asp	Ser	Thr	Tyr	Pro	Thr	Asn
	370					375					380				
Glu	Thr	Ser	Ser	Thr	Pro	Gly	Ala	Val	Arg	Gly	Ser	Cys	Ser	Thr	Ser
385					390					395					400
Ser	Gly	Val	Pro	Ala	Gln	Val	Glu	Ser	Gln	Ser	Pro	Asn	Ala	Lys	Val
				405					410					415	
Thr	Phe	Ser	Asn	Ile	Lys	Phe	Gly	Pro	Ile	Gly	Ser	Thr	Gly	Asn	Pro
			420					425					430		
Ser	Gly	Gly	Asn	Pro	Pro	Gly	Gly	Asn	Pro	Pro	Gly	Thr	Thr	Thr	Thr
		435					440					445			
Arg	Arg	Pro	Ala	Thr	Thr	Thr	Gly	Ser	Ser	Pro	Gly	Pro	Thr	Gln	Ser
	450					455					460				
His	Tyr	Gly	Gln	Cys	Gly	Gly	Ile	Gly	Tyr	Ser	Gly	Pro	Thr	Val	Cys
465					470					475					480
Ala	Ser	Gly	Thr	Thr	Cys	Gln	Val	Leu	Asn	Pro	Tyr	Tyr	Ser	Gln	Cys
				485					490					495	

Leu

<210> 11  
 <211> 515  
 <212> PRT  
 <213> Scytalidium thermophilum

<400> 11

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			20					25					30		
Thr	Leu	Asp	Ser	Asn	Trp	Arg	Trp	Thr	His	Gln	Val	Ser	Gly	Ser	Thr
		35					40					45			
Asn	Cys	Tyr	Thr	Gly	Asn	Glu	Trp	Asp	Ser	Ser	Ile	Cys	Thr	Asp	Ala
	50					55					60				
Lys	Ser	Cys	Ala	Gln	Asn	Cys	Cys	Val	Asp	Gly	Ala	Asp	Tyr	Thr	Ser
65					70					75					80
Thr	Tyr	Gly	Ile	Thr	Thr	Asn	Gly	Asp	Ser	Leu	Ser	Leu	Lys	Phe	Val
				85					90					95	
Thr	Lys	Gly	Gln	Tyr	Ser	Thr	Asn	Val	Gly	Ser	Arg	Thr	Tyr	Leu	Met
			100					105					110		
Asp	Gly	Glu	Asp	Lys	Tyr	Gln	Thr	Phe	Glu	Leu	Leu	Gly	Asn	Glu	Phe
		115					120					125			
Thr	Phe	Asp	Val	Asp	Val	Ser	Asn	Ile	Gly	Cys	Gly	Leu	Asn	Gly	Ala
	130					135					140				
Leu	Tyr	Phe	Val	Ser	Met	Asp	Ala	Asp	Gly	Gly	Leu	Ser	Arg	Tyr	Pro
145					150					155					160
Gly	Asn	Lys	Ala	Gly	Ala	Lys	Tyr	Gly	Thr	Gly	Tyr	Cys	Asp	Ala	Gln
			165					170					175		
Cys	Pro	Arg	Asp	Ile	Lys	Phe	Ile	Asn	Gly	Glu	Ala	Asn	Ile	Glu	Gly
			180					185					190		
Trp	Thr	Gly	Ser	Thr	Asn	Asp	Pro	Asn	Ala	Gly	Ala	Gly	Arg	Tyr	Gly

		195					200					205				
Thr	Cys	Cys	Ser	Glu	Met	Asp	Ile	Trp	Glu	Ala	Asn	Asn	Met	Ala	Thr	
	210					215					220					
Ala	Phe	Thr	Pro	His	Pro	Cys	Thr	Ile	Ile	Gly	Gln	Ser	Arg	Cys	Glu	
225					230					235					240	
Gly	Asp	Ser	Cys	Gly	Gly	Thr	Tyr	Ser	Asn	Asp	Arg	Tyr	Ala	Gly	Val	
				245					250					255		
Cys	Asp	Pro	Asp	Gly	Cys	Asp	Phe	Asn	Ala	Tyr	Arg	Gln	Gly	Asn	Lys	
			260				265						270			
Thr	Phe	Tyr	Gly	Lys	Gly	Met	Thr	Val	Asp	Thr	Thr	Lys	Lys	Leu	Thr	
		275					280					285				
Val	Val	Thr	Gln	Phe	Leu	Lys	Asp	Ala	Asn	Gly	Asp	Leu	Gly	Glu	Ile	
	290					295					300					
Lys	Arg	Phe	Tyr	Val	Gln	Asp	Gly	Lys	Ile	Ile	Pro	Asn	Ser	Glu	Ser	
305					310					315					320	
Thr	Ile	Pro	Gly	Val	Glu	Gly	Asn	Ser	Ile	Thr	Gln	Asp	Trp	Cys	Asp	
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Arg	Gln	Lys	Val	Ala	Phe	Gly	Asp	Ile	Asp	Asp	Phe	Asn	Arg	Lys	Gly	
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Gly	Met	Lys	Gln	Met	Gly	Lys	Ala	Leu	Ala	Gly	Pro	Met	Val	Leu	Val	
		355					360					365				
Met	Ser	Ile	Trp	Asp	Asp	His	Ala	Ser	Asn	Met	Leu	Trp	Leu	Asp	Ser	
	370				375						380					
Thr	Phe	Pro	Val	Asp	Ala	Ala	Gly	Lys	Pro	Gly	Ala	Glu	Arg	Gly	Ala	
385					390					395					400	
Cys	Pro	Thr	Thr	Ser	Gly	Val	Pro	Ala	Glu	Val	Glu	Ala	Glu	Ala	Pro	
				405					410					415		
Asn	Ser	Asn	Val	Val	Phe	Ser	Asn	Ile	Arg	Phe	Gly	Pro	Ile	Gly	Ser	
			420					425					430			
Thr	Val	Ala	Gly	Leu	Pro	Ser	Asp	Gly	Gly	Asn	Asn	Gly	Gly	Asn	Thr	
		435					440					445				
Thr	Val	Gln	Pro	Pro	Pro	Ser	Thr	Thr	Thr	Thr	Ser	Ala	Ser	Ser	Ser	
	450					455					460					
Thr	Thr	Ser	Ala	Pro	Ala	Thr	Thr	Thr	Thr	Ala	Ser	Ala	Gly	Pro	Lys	
465					470					475					480	
Ala	Gly	Arg	Trp	Gln	Gln	Cys	Gly	Gly	Ile	Gly	Phe	Thr	Gly	Pro	Thr	
				485					490					495		
Gln	Cys	Glu	Glu	Pro	Tyr	Thr	Cys	Thr	Lys	Leu	Asn	Asp	Trp	Tyr	Ser	
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Gln	Cys	Leu														
		515														

<210> 12  
 <211> 507  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> consensus sequence

<400> 12  
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 20 25 30  
 Thr Leu Asp Ser Asn Trp Arg Trp Thr His Gln Val Ser Gly Ser Thr  
 35 40 45  
 Asn Cys Tyr Thr Gly Asn Lys Trp Asp Ser Ser Ile Cys Thr Asp Ala  
 50 55 60  
 Lys Ser Cys Ala Gln Asn Cys Cys Val Asp Gly Ala Asp Tyr Thr Ser  
 65 70 75 80  
 Thr Tyr Gly Ile Thr Thr Asn Gly Asp Ser Leu Ser Leu Lys Phe Val

				85					90					95			
Thr	Lys	Gly	Gln	His	Ser	Thr	Asn	Val	Gly	Ser	Arg	Thr	Tyr	Leu	Met		
			100					105					110				
Asp	Gly	Glu	Asp	Lys	Tyr	Gln	Thr	Phe	Glu	Leu	Leu	Gly	Asn	Glu	Phe		
		115					120					125					
Thr	Phe	Asp	Val	Asp	Val	Ser	Asn	Ile	Gly	Cys	Gly	Leu	Asn	Gly	Ala		
		130					135				140						
Leu	Tyr	Phe	Val	Ser	Met	Asp	Ala	Asp	Gly	Gly	Leu	Ser	Arg	Tyr	Pro		
145					150					155					160		
Gly	Asn	Lys	Ala	Gly	Ala	Lys	Tyr	Gly	Thr	Gly	Tyr	Cys	Asp	Ala	Gln		
				165					170						175		
Cys	Pro	Arg	Asp	Ile	Lys	Phe	Ile	Asn	Gly	Glu	Ala	Asn	Ile	Glu	Gly		
			180					185					190				
Trp	Thr	Gly	Ser	Thr	Asn	Asp	Pro	Asn	Ala	Gly	Ala	Gly	Arg	Tyr	Gly		
		195					200						205				
Thr	Cys	Cys	Ser	Glu	Met	Asp	Ile	Trp	Glu	Ala	Asn	Asn	Met	Ala	Thr		
		210				215					220						
Ala	Phe	Thr	Pro	His	Pro	Cys	Thr	Ile	Ile	Gly	Gln	Ser	Arg	Cys	Glu		
225					230					235					240		
Gly	Asp	Ser	Cys	Gly	Gly	Thr	Tyr	Ser	Asn	Glu	Arg	Tyr	Ala	Gly	Val		
				245					250						255		
Cys	Asp	Pro	Asp	Gly	Cys	Asp	Phe	Asn	Ser	Tyr	Arg	Gln	Gly	Asn	Lys		
			260					265					270				
Thr	Phe	Tyr	Gly	Lys	Gly	Met	Thr	Val	Asp	Thr	Thr	Lys	Lys	Ile	Thr		
		275					280					285					
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Thr	Tyr	Gly	Ile	Thr	Thr	Asn	Gly	Asp	Ser	Leu	Ser	Leu	Lys	Phe	Val
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Gly	Asn	Lys	Ala	Gly	Ala	Lys	Tyr	Gly	Thr	Gly	Tyr	Cys	Asp	Ala	Gln
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Cys	Pro	Arg	Asp	Ile	Lys	Phe	Ile	Asn	Gly	Glu	Ala	Asn	Ile	Glu	Gly
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Trp	Thr	Gly	Ser	Thr	Asn	Asp	Pro	Asn	Ala	Gly	Ala	Gly	Arg	Tyr	Gly
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Thr	Phe	Tyr	Gly	Lys	Gly	Met	Thr	Val	Asp	Thr	Thr	Lys	Lys	Ile	Thr
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	290					295					300				
Lys	Arg	Phe	Tyr	Val	Gln	Asp	Gly	Lys	Ile	Ile	Pro	Asn	Ser	Glu	Ser
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Thr	Ile	Pro	Gly	Val	Glu	Gly	Asn	Ser	Ile	Thr	Gln	Asp	Trp	Cys	Asp
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	370					375					380				
Thr	Phe	Pro	Val	Asp	Ala	Ala	Gly	Lys	Pro	Gly	Ala	Glu	Arg	Gly	Ala
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Cys	Pro	Thr	Thr	Ser	Gly	Val	Pro	Ala	Glu	Val	Glu	Ala	Glu	Ala	Pro
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Asn	Ser	Asn	Val	Val	Phe	Ser	Asn	Ile	Arg	Phe	Gly	Pro	Ile	Gly	Ser
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Thr	Val	Ala	Gly	Leu	Pro	Gly	Ala	Gly	Asn	Gly	Gly	Asn	Asn	Gly	Gly
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Asn	Pro	Pro	Pro	Pro	Thr	Thr	Thr	Thr	Ser	Ser	Ala	Pro	Ala	Thr	Thr
	450					455					460				
Thr	Thr	Ala	Ser	Ala	Gly	Pro	Lys	Ala	Gly	Arg	Trp	Gln	Gln	Cys	Gly
465					470					475					480
Gly	Ile	Gly	Phe	Thr	Gly	Pro	Thr	Gln	Cys	Glu	Glu	Pro	Tyr	Thr	Cys



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